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ABSTRACT OF THE INVENTION

A method of alleviating chest pain that stems from the heart, which method comprises: (a) noticing a pain in the chest; and then shortly thereafter (b) taking
5 lime juice into the body to alleviate the chest pain.

METHOD OF TREATING CHEST PAIN

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TECHNICAL FIELD

This invention pertains to a method of treating chest pain, particularly angina pectoris.

BACKGROUND

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Angina pectoris is a condition where a person feels paroxysmal pain in the chest. This clinical complex is characterized by various degrees of chest pain that occurs in sudden attacks. The chest pain may be accompanied by other symptoms, notably pain or discomfort of the arms, shoulders, and other sites. The symptoms are most often induced by some physical or emotional stress and often subside promptly with rest or appropriate therapy. *McGraw Hill Encyl. Sci. & Tech.*, vol. 1, p. 539 (6th Ed. 1987).

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The chest pain typically is associated with an insufficient supply of blood to a portion of the heart. Common occurrences that precede an angina attack are changes that cause a decrease in blood supply to heart muscle or that create sudden extra demands on the heart so that there is a relative inadequacy of blood. Arteriosclerosis frequently is responsible for the narrowing or partial occlusion of one of the coronary arteries or branches, but other contributing factors such as diabetes mellitus, familial incidence, and emotional stress are examples of other disorders that may set the stage for an anginal attack. This form of coronary heart disease sometimes is a precursor to a heart attack or coronary thrombosis, where a persons artery becomes occluded by a blood clot. There is much overlap between angina pectoris and other forms of coronary heart disease such as arteriosclerotic heart disease and myocardial infarction. *McGraw Hill Encyl. Sci. & Tech.*, vol. 8, p. 346 (6th Ed. 1987).

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Doctors regularly prescribe nitroglycerin to patients that suffer from angina pectoris. After oral administration, nitroglycerin is metabolized rapidly in the intestinal wall and liver, so that systemic bioavailability is rather low. Consequently,

oral doses are quite high and plasma levels are erratic. Medical authorities do not recommend sustained-release forms of nitroglycerin because of poor oral bioavailability and favorable tolerances. *Remington's Pharmaceutical Sciences*, Chap. 41, p. 844, (18th Ed. 1990).

5 Nitroglycerin is commonly administered in the form of very small tablets that are approximately one-eighth inch in diameter. These tablets are very difficult for the patient to handle: they can be easily dropped and often more than one tablet comes out of the bottle during dispensing. Size also makes it hard for the patient to return unneeded tablets to the bottle, particularly when moisture is present on the
10 patient's hand.

When taking nitroglycerin, patients put the tablet under their tongue and wait about two-to-four minutes for the tablet to dissolve. It is sometimes not easy for the patient to ascertain if the medicine has been properly ingested. The patient then waits approximately five minutes for the angina attack to go away.

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SUMMARY OF THE INVENTION

Sub B1 ~~This invention provides an alternative to taking nitroglycerin to combat chest pain such as angina pectoris. In accordance with this invention, a person takes in lime juice after noticing the onset of the chest pain. As the term is used in this document, "lime juice" means lime juice or limeade or any combination that includes the juice of a lime whether in concentrated or diluted form or that includes the active ingredients in the lime that counter the chest pain or anginal attack.~~

20 The inventor surprisingly discovered that by taking lime juice shortly after noticing that he was experiencing an anginal attack that his chest pain immediately subsided. The lime juice can be easily administered by, for example, placing about
25 one-fourth teaspoon or more of frozen concentrate lime juice in the mouth, letting it dissolve, and swallowing. The inventor also discovered that by consuming lime juice regularly, for example, by drinking about at least a glass daily in non-concentrate form, that chest pain did not occur and would not reoccur.

30 The present invention is advantageous in that a patient can easily determine if the medicine is properly ingested. Lime juice has a very noticeable taste that

*mouth
or
physical
condition?*

disappears after it leaves the mouth. Since the juice is regularly stored in the refrigerator or freezer, it can be quickly located by the patient, particularly at nighttime where the refrigerator light plays a helpful role. This of course is very important because time may be of the essence when experiencing angina pectoris.

5 The patient does not have to wait two-to-four minutes for a tablet to dissolve, and there is no concern for dropping tablets on the floor. Lime juice also costs much less than nitroglycerin, which typically runs about \$10 to \$15 for a bottle that contains about thirty pills. Because limes are a naturally occurring product meant for digestion, patients will generally experience no side effects unless they happen to
10 be allergic to limes.

These and other advantages of the invention are more fully described below in the detailed description of this invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

15 In practicing the present invention, a person who experiences or has experienced chest pain associated with a heart condition takes in lime juice to alleviate the pain. The inventor discovered that after eating only about one-fourth teaspoon of commercially available frozen concentrate for lime juice or limeade, that his chest pain subsided for two to five hours at a minimum. The inventor found
20 it much less troublesome to ingest the lime juice as opposed to taking nitroglycerin tablets for the reasons discussed above. After learning of the benefits of lime juice, the inventor used lime juice solely without taking nitroglycerin and without fear that the chest pains would reoccur.

Although lime juice is easily administered orally, it is not beyond the scope
25 of this invention to take it using other methods such as intravenous methods. It is important to get the lime juice into the body rapidly so that it can ultimately enter the circulatory system (in form unknown) to cause a quick recovery. The lime juice may be taken, for example, in the form of juice fresh from the lime, from frozen concentrate as indicated above, or in diluted form with the addition of water.

30 Persons skilled in the art of purification and/or pharmacology may also locate the active ingredient(s) in the lime and administer those ingredient(s) in purified form or

what
is the
active
ingredient?

otherwise to persons who suffer from chest pain such as angina pectoris. As lime juice is defined above it is intended to include all these forms of administering lime juice.

5 The inventor discovered that approximately one fourth or more teaspoons of lime juice in frozen concentrated form was sufficient to alleviate the chest pain he was suffering as a result of angina pectoris. Preferably, at least one half teaspoon was consumed to recover from an angina attack. When chest pain is strong, 2 to 3 teaspoons administered orally would remove the pain. The inventor also discovered that by drinking at least a cup of lime juice in non-concentrated form, more
10 preferably two to five cups daily (two to three cups may be sufficient), that the chest pain did not occur or reoccur. When used in non-concentrated form approximately 16 fluid ounces to 72 fluid ounces of water are added to the frozen concentrate, which may be purchased in the store, e.g., Minute Maid™ concentrated Limeade. The manufacturer recommends the addition of about 52 fluid ounces. When lime
15 juice is prepared from juice squeezed from a lime, the lime juice is preferably diluted at about ¼ to 2 cups of water per teaspoon of lime juice. The amount of lime juice taken may vary from person-to-person. Person should be able to determine for themselves the "effective amount" of lime juice that needs to be taken. By "effective amount" is meant an amount sufficient to have a beneficial effect on the
20 heart after noticing the chest pain.

The following Examples have been selected to further illustrate features, advantages, and other details of the invention. It is to be expressly understood, however, that while the Example serve this purpose, the particular ingredients and amounts used as well as other conditions and details are not to be construed in a
25 manner that would unduly limit the scope of this invention.

EXAMPLE

Example 1

30 ~~Sub B2~~ Upon noticing a pain in my chest, I placed one-half to one teaspoon of Premium All Natural Frozen Concentrate For Limeade, Minute Maid™ brand, (contains 14 percent lime juice) onto a spoon. The spoon was placed in my mouth,

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~~and the frozen concentrated limeade dissolved and was swallowed. The chest pain~~
~~subsidied almost instantaneously.~~

Example 2

5 Limeade in non-concentrated form was prepared by opening a can of the Minute Maid™ brand Premium All Natural Frozen Concentrate for Limeade, removing the contents and placing it in a pitcher, adding approximately 52 fluid ounces (about 4.5 cans) of tap water to the frozen concentrate, and stirring. The pitcher was placed in the refrigerator so that the contents would cool. I drank
10 approximately 2 to 3 glasses of limeade daily and did not notice the reoccurrence of chest pain.

Example 3

15 I purchased whole limes from the grocery store (key limes I believe). The limes were cleaned, sliced, and squeezed. I consumed approximately 1 teaspoon of the fresh-squeezed lime juice shortly after noticing the onset of chest pain. Shortly thereafter the chest pain subsided.

20 This invention may take on various modifications and alterations without departing from the spirit and scope thereof. Accordingly, it is to be understood that this invention is not to be limited to the above-described, but it is to be controlled by the limitations set forth in the following claims and any equivalents thereof. It is also to be understood that this invention may be suitably practiced in the absence of any element not specifically disclosed herein.

What is claimed is:

1. A method of preventing the reoccurrence of chest pain associated with the heart, which method comprises:

- (a) noticing a pain in the chest; and then shortly thereafter
(b) taking lime juice into the body to alleviate the chest pain.

2. The method of claim 1, wherein the chest pain is angina pectoris.

3. The method of claim 1, wherein the lime juice enters the body by consuming it orally.

4. The method of claim 2, wherein the lime juice is consumed in concentrated form by taking at least one half teaspoon of frozen concentrated lime juice or limeade.

5. The method of claim 1, further comprising:
preventing the reoccurrence of chest pain by taking lime juice into the body daily.

6. The method of claim 5, wherein at least one cup of lime juice is consumed orally daily.

7. The method of claim 6, wherein 2 to 5 cups are consumed daily.

8. The method of claim 6, wherein 2 to 3 cups are consumed daily.

9. A method of treating angina pectoris, which method comprises:
(a) noticing the onset of an angina attack; and then shortly thereafter
(b) taking an effective amount of lime juice into the body.

[illegible]

13. The method of claim 10, wherein the lime juice is limeade.

I, a below named inventor, depose and say that: (1) my residence, citizenship, and mailing address is indicated below; (2) I have reviewed and understand the contents of attached specification, including the claims, as amended by any amendment specifically referred to herein, (3) I believe that I am the original, first, and sole inventor or discoverer of the invention or discovery in

METHOD OF TREATING CHEST PAIN

described and claimed therein and for which a patent is sought; and (4) I hereby acknowledge my duty to disclose to the Patent and Trademark Office all information known to me to be material to the patentability as defined in Title 37, Code of Federal Regulations, §1.56.*

I hereby appoint Karl G. Hanson (Reg. No. 32,900) as my attorney and/or agent with full powers (including the powers of appointment, substitution, and revocation) to prosecute this application and any division, continuation, continuation-in-part, reexamination, or reissue thereof, and to transact all business in the Patent and Trademark Office connected therewith; the mailing address and the telephone number of the above-mentioned attorneys and/or agents are

Attention: Karl G. Hanson
3M Office of Intellectual Property Counsel
P.O. Box 33427
St. Paul, Minnesota 55133-3427
Telephone No. (612) 736-7776

The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Wherefore, I pray for grant of Letters Patent for the invention or discovery described and claimed in the attached specification and I hereby subscribe my name to the foregoing specification and claims, declaration, power of attorney, and this petition, on the day set forth below.

Carl E. Hanson Date
 Residence: Lanark Village, Florida, U.S.A. 1/2
 Citizenship: United States of America
 Post Office P.O. Box 33427
 Address: St. Paul, Minnesota 55133-3427

§1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned.

Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.